

## The Gilruth Center has "Something for everybody"

"We try to offer something for everybody," said Carl McCollum Recreation Director at the Gilruth Recreation Center. "More and more people are taking advantage of what the center has to offer so we're building on," added McCollum.

To keep up with the increased use of the center, a two story, 33 foot expansion is being added on the Southeast side of the building (towards the tennis courts). The project is scheduled to be completed September 1, 1981.

The lower story will house additional locker and exercise space, and room for a universal type weight machine. The second story's additional space will add three more classrooms for the center's after-hours programs.

Other improvements are also plan-

ned. A fourth softball field is nearing completion. An overall replenishing of the grounds is underway.

Currently, recreation programs include organized sports, social and youth programs, after-hours classes, and freestyle.

The first summer softball season is in its playoffs. It is the best of eighty seven teams' three men's divisions, two mixed divisions, and one women's division.

Although the Gilruth Recreation Center is basically an adult recreation center, several children's programs are now offered. This summer, the tennis program has been expanded to include children.

Also this year, every other Saturday the center has shown a current children's movie. One dollar pays for the movie, popcorn, and a coke. The children's dinner theatre is another new program. Two dollars buys lunch and a live play.

The last Saturday of every month is a day for runners. The JSC "Fun Runs" have had outstanding attendance ranging from 200 to 500 participants. This fall, JSC will host the 12th Combat Memorial 1/2 Marathon. A large turnout is expected.

New programs coming up this fall include a big "Texas Size" garage sale. Employees will be given the opportunity to clean up their garages every fall and spring and take part in the sale. A "grow your own" gardening club will allot space on site for apartment dwellers to grow a garden. Other new programs include talent shows, free throwing and one-on-one basketball tournaments, juggling, yoga, arts and crafts, backpacking, and nature hikes.

Take time and see what the Gilruth Center has for you. Membership is free. NASA employees can get their membership cards at building 11 and contractors can get theirs at the Gilruth Center.

## Natural laser discovered on Mars

Investigators at NASA's Goddard Space Flight Center, Greenbelt, Md., and the University of Maryland have discovered a natural infrared laser on Mars—an observation that could lead to the discovery of new planets in the universe and might force scientists to rewrite their books on general physics of the planetary atmosphere.

In their paper, the scientists point out that since the invention of optical lasers some 50 years ago, they have proved extremely useful in scientific laboratories and in everyday life, where one of the most obvious uses has been the supermarket price scanners.

see *Natural laser*, pg. 4



**Space Walker**

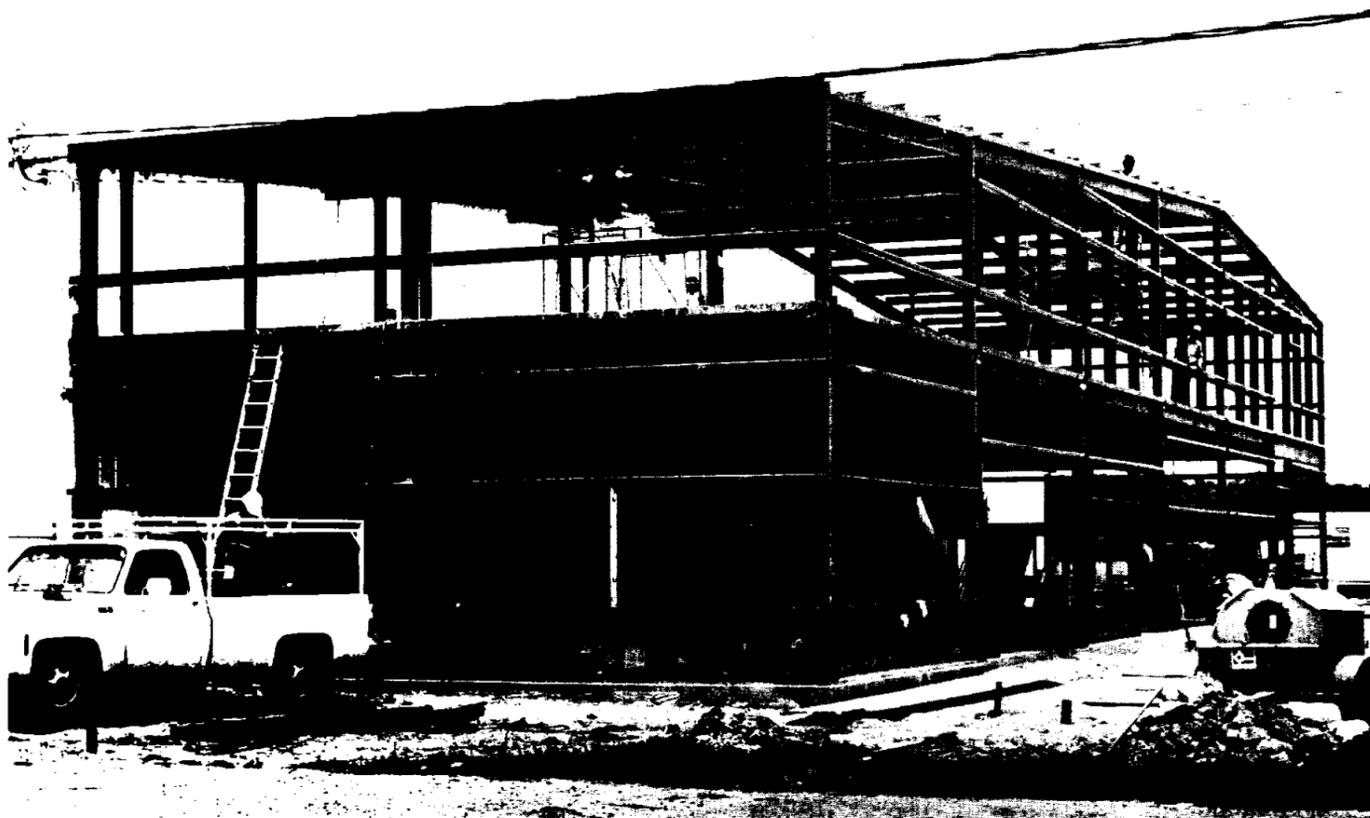
Astronaut George D. Nelson puts new space suit thermal "mittens" through paces in vacuum chamber B simulating continuous Sun and deep space cold exposures during an EVA. Seven manned thermal vacuum certification tests have been completed on the Extravehicular Maneuvering Unit (EMU). Two simulated orbital environmental variations. Two were continuous Sun exposures in a 78-degree or higher orbit, and two were deep space cold exposures associated with EVA in a star-oriented cargo bay. The space suit remained comfortable under the maximum cases of hot and cold conditions for EVA up to seven hours. A seventh test proved "mittens" could keep glove fingertips comfortable at 150 degrees below zero and 300 degrees above.

## Shuttle Update: External tank mated with solid rocket boosters

The external tank and solid rocket boosters for Columbia's second flight were mated in KSC Vertical Assembly Building Tuesday after all external tank systems tests were complete. A test of the redesigned gaseous oxygen vent hood (beany cap) was planned this week.

Most work on Columbia in the Orbiter Processing Facility (OPF) was on schedule, with 240 tiles bonded last week. A total 1229 tiles will be replaced on Columbia because of STS-1 ice damage during launch, instrumented tiles removed for analysis, and those removed for other reasons.

STS-2 prime crewmen Joe Engle and Dick Truly are logging the hours in the Shuttle Mission Simulators and other training equipment as they prepare for the launch currently scheduled for September 30. Integrated simulations between Mission Control Center and the crew simulators have reverted to the Tuesday-Thursday schedule, with a 30-hour simulation planned for July 7 and 8 starting at liftoff plus four hours. New flight directors Tommy Holloway and Hal Draughon will join Chuck Lewis in heading the flight control team for this simulation.



**Hard at it**

The Granada Building Corp. readies the Gilruth Recreation Center's Southeast 33 foot extension. The addition is scheduled to be finished September 1, 1981.



**They don't call him John Robert for nothin'**

April 14 not only saw the successful completion of NASA's first Shuttle flight, but also welcomed John Robert Millsap into the world. His parents, Mr. and Mrs. Richard Millsap named their son after STS-1 astronauts John Young and Robert Crippen.

## April 14th was a very good day...

On April 14, 1981 at 12:21 two very exciting events were happening to Richard Millsap, personnel management specialist at JSC. His wife, Nancy was in Clear Lake Hospital's delivery room preparing to bear their first son and STS-1 had completed its first successful flight.

The Millsaps had been in the hospital all morning waiting for their son and watching the television coverage of the flight. With five minutes until landing, Nancy was moved into the delivery room. The television set followed.

"Clear Lake is a progressive hospital; they knew that we were interested in the flight," said Richard Millsap.

At 1:12 John Robert Millsap,

a healthy seven pound 10 ounce boy was born and named after Columbia's astronauts John Young and Robert Crippen.

"During Nancy's labor, the name just hit me," said Millsap. Ten minutes after John Robert's birth, Young and Crippen crawled through the hatch at Edwards Air Force Base.

"When my son was born I thought about when I was born three decades ago and how far technology has come. I can only wonder about what the next three decades will bring my son," said Millsap.

Young and Crippen acknowledged the naming of the Millsap's son with an autographed picture of the landing.

## Caution: Electric garage doors may be hazardous to your health

Every year a large number of children are trapped and injured by automatic electric garage doors. Underwriters Laboratories is responding to this problem by encouraging stricter safety regulations on future models.

Right now, the danger lies with older and inexpensive models that don't have safety features like automatic shut-off and pressure sensitive door releases.

According to the UL, the majority of injuries have resulted from children playing games with the automatic doors. "Dodge and door" is the most common game where a child activates the door and then tries to run under it before it closes. Frequently the child

becomes trapped beneath the door with no one around to help.

UL stressed the importance of teaching children about the danger of these automatic doors and checking the current models in use.

### JSC Exchange Store - Bldg. 11

(Store Hours 10:00 AM to 2:00 PM)  
 Plitt Theater tickets - \$2.10 each  
 General Cinema tickets - \$2.40 each  
 Astroworld/Six Flags tickets - \$9.50  
 Postage Stamps - 18 cents - Book \$3.60 each

## NASA signs agreement for German satellite

NASA and the West German firm Messerschmitt-Boelkow-Blohm GmbH (MBB) have signed a launch services agreement for the first flight of the Shuttle Pallet Satellite (SPAS-01) which will be carried into orbit on the first Space Shuttle operational flight (STS-5) now scheduled for September 1982. It will be the first payload to be deployed and retrieved by the Space Shuttle's Canadian-built Remote Manipulator System (RMS).

The 1814-kilogram (4000-pound) SPAS-01 is designed to operate in the attached mode inside the Shuttle payload bay as well as in the deployed mode as a free flyer. In the deployed mode, it is controlled by an onboard stabilization and control system.

MBB's primary purpose on this first flight is to conduct materials processing research experiments while SPAS is in the Shuttle payload bay. NASA will use the payload in a test of the remote manipulator system's deployment and retrieval capabilities during the five-day mission. A 70mm camera mounted on SPAS will provide photo coverage during deployment, free flight, retrieval and reberthing on the Shuttle.

The agreement covers launch services to be provided by NASA at the Kennedy Space Center, Fla., and the Johnson Space Center, Houston, as well as NASA's use of the SPAS-01 for the Remote Manipulator System test.

In addition to the SPAS-01, the first operational mission of the Space Shuttle will also carry two geosynchronous communications satellites.

The operational Space Shuttle program is managed by NASA's Office of Space Transportation Operations, Washington, D.C.

**Take stock in America.**



## Bulletin Board

### Fireworks Display

On Saturday, July 4th, 9:00 p.m., the Watergate Yachting Center will have its annual fireworks display.

### JSC Astronomy Brown-Bag Seminars

Every Wednesday noon to one, Building 31, conference room 193

#### SCHEDULE

July 8 - Topic to be announced  
 July 15 - Carl Seyfert - Topic to be announced

July 22 - Andrew Seacord - Numerical Studies of Galactic Structure and Evolution

July 29 - A. A. Jackson - Supernova Models

### Tchaikovsky Festival

The Houston Symphony will

hold seven concerts from July 15-25 in Jones Hall. Also, a special symposium on Tchaikovsky will be held July 18th. Admission to the symposium is free. For more information on the Festival, call 224-6886.

### JSC Golf Association

Flight II of the JSC Golf Association played it's fourth tournament at Goose Creek (Baytown) on June 20.

The course was in excellent condition and is one of the most interesting courses the JSCGA plays. Winners were Tom Matuszewski (net 73), Fred Bowman (73), Brad McPherson (74), and John Zombory (75).



### We're waiting to hear from you

Know anything exciting happening here at JSC? Is your club, team, branch, or division doing anything new or unusual? If so, the Roundup (AP3) would like to hear about it.

## Cookin' in the cafeteria

Week of July 6 - 10, 1981

Week of July 13 - 17, 1981

**Monday:** Chicken Noodle Soup; Round Steak w/Hash Browns; Weiners & Beans; Meatballs & Spaghetti (Special); Okra & Tomatoes, Carrots, Whipped Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches, and Pies.

**Tuesday:** Beef & Barley Soup; Beef Stew; Shrimp Creole; Fried Chicken (Special); Stewed Tomatoes, Mixed Vegetables, Broccoli.

**Wednesday:** Seafood Gumbo; Fried Perch; New England Dinner; Swiss Steak (Special); Italian Green Beans, Cabbage, Carrots.

**Thursday:** Cream of Chicken Soup; Turkey & Dressing; Enchiladas w/Chili; Weiners & Macaroni; Stuffed Bell Pepper (Special) Zucchini Squash, English Peas, Rice.

**Friday:** Seafood Gumbo; Baked Flounder; 1/4 Broiled Chicken w/Peach Half; Salisbury Steak (Special) Cauliflower au Gratin, Mixed Vegetables, Whipped Potatoes, Buttered Cabbage.

**Monday:** Chicken & Rice Soup; Texas Hots & Beans; BBQ Ham Steak; Steak Parmesan; Beef & Macaroni (Special); Green Beans, Carrots, Au Gratin Potatoes. Standard Daily Items: Roast Beef, Baked Ham, Fried Chicken; Fried Fish; Chopped Sirloin. Selection of Salads, Sandwiches, and Pies.

**Tuesday:** Tomato Soup; Potato Baked Chicken; BBQ Spare Ribs; Mexican dinner (Special); Squash, Ranch Beans, Spanish Rice, Broccoli.

**Wednesday:** Seafood Gumbo; Baked Turbot; Liver & Onions; BBQ Ham Steak; Baked Meatloaf w/Creole Sauce (Special); Beets, Brussels Sprouts, Green Beans, Whipped Potatoes.

**Thursday:** Beef & Barley Soup; Chicken & Dumplings; Corned Beef w/Cabbage; Smothered Steak w/Cornbread Dressing (Special); Spinach, Cabbage, Cauliflower au Gratin, Parsley Potatoes.

**Friday:** Seafood Gumbo; Pork Chop w/Yam Rosette; Creole Baked Cod; Tuna & Salmon Croquette (Special); Brussels Sprouts, Green Beans, Buttered Corn, Whipped Potatoes.

**Payroll Savings.**  
**The cold, hard, calculating way to get a nice, warm feeling of security.**

# At the Gilruth Rec Center

Registration is being accepted in the following leisure time classes at the Gilruth Recreation Center:

**Defensive Driving** - Learn to drive safely and qualify for a 10 percent reduction in your auto insurance for the next 3 years. Class meets on Saturday, July 18 from 8:00 AM to 5:00 PM. Cost is \$15.00 per person.

**Ladies Exercise Class** - A chance to get in shape and stay that way. Class meets on Tuesdays and Thursdays from 5:15 PM to 6:15 PM. Cost is \$12.00 per month.

**Juggling** - A class for young and old alike. Learn the noble art of juggling. Course meets on Tuesdays from 7:00 PM - 9:00 PM for 6 weeks, beginning 14 July. Cost is \$20.00 per person.

**Beginning Tennis Lessons** - A class designed for those who have never had a lesson. Class meets from 5:15 PM to 6:45 PM on Tuesdays, beginning July 7. Cost for this 8 week course is \$24.00. Other announcements are as follows:

**Second Softball Season** - Registration is now being accepted for the 2nd Softball Season. Cost is \$100.00 for EAA teams and \$150.00 for non EAA teams. Season will begin in mid July.

**Saturday at the Movies** - The next children's movie will be held on July 11 at 10:00 AM. Feature presentation will be Jules Verne's classic "20,000 Leagues Under the Sea", plus cartoons, coke and popcorn. Cost is \$1.00. Get your tickets

at Building 11 Exchange Store. **Moonwalk Softball Tourney** - Sign up your team now for this tourney to be held on 17, 18, 19 July. Registration is limited to 24 men's teams and 12 women's teams. Cost is \$65.00 per team.

**Tennis Courts** - The Gilruth Recreation Center has 4 tennis courts available for reservation. Cost is \$.75 per person per hour and a half. Call x3944 for reservations.



Claire Nichols



Helon Crawford

## Procurement honors two buyers

Helon Crawford and Claire Nichols of the Institutional Procurement Division were recognized as JSC's Small Business Buyers of the Year for Fiscal 1980.

Ms. Crawford was honored as the JSC Buyer whose cooperative efforts resulted in the largest number of small business set asides processed by a single buyer during the year.

Ms. Nichols received her award for having the largest dollar volume of small business

set asides initiated during FY 80.

During FY 80, JSC placed \$33.4 million of purchases and contracts with small business firms of which \$18.1 million were in small business set asides.

Both small business dollars and small business set aside dollars increased considerably over 1979 figures, demonstrating an effort by JSC in support of the small business community.

## The air is cleaner at JSC

In June 1973 the Houston area was designated an Air Quality Maintenance Area (AQMA) for particulate matter by the Environmental Protection Agency (EPA). An AQMA is an area thought to have the potential for exceeding EPA standards over a 10 year period.

Since NASA is a part of the Houston area, JSC's Environmental Health Services branch has been collecting special 24-hour ambient air samples every week and recording the amount of airborne particulate matter.

While sections of the Houston area have exceeded national standards set by the EPA, JSC has always been within the safe limits.

# Roundup Swap Shop

Ads must be under 20 words total per person, double spaced, and typed or printed. Deadline for submitting or cancelling ads is 5 p.m. the first Wednesday after publication. Send ads to AP3 Roundup, or deliver them to the Newsroom, Building 2 annex. No phone-in ads will be taken. Swap Shop is open to JSC federal and on-site contractor employees for non-commercial personal ads.

### Miscellaneous

Romex compact refrigerator, approximately 2 cu. ft., white, \$55. Jack 483-6301.

Sears pinball machine - \$100. 16" glass sphere for aquarium or terrarium - \$10. 2 life jackets - \$10 ea. Floor polisher-waxer - \$20. 482-2810. "The spring honey crop is ready! Quarts and gallons. Ward x4976.

Police/fire scanning monitor radio, Radio Shack PRO-47, VHF-lo/VHF-hi/UHF, 10 channel, hardly used, like new \$80. Call Ron x3035, 480-4267.

For Sale - Antiques - Pitcher & boat sets, cheese dishes, vases, cruet sets, dresser sets, brass items, etc. 482-7203.

Typewriter, electric, SCM model 250 13", used, \$90. Al x3776.

Beautiful old TV console cabinet. Excellent wood finish, can set your 17 or 19 in. portable inside. 643-8944.

Dictation cassette system, also cassette recorder, telephone recorder, made by Craig, includes hand unit. \$40 M.C.W. x4105.

For Sale: Pop-up camper. Compact easily pulls. Has builtins, utilities, extras. \$750. Call Phelan (3151) for home number.

Ladies diamond ring .23 pts. Montclair fine diamond, rose, yellow, and white gold band never worn, appraised at \$865, sell for \$425. 486-8585.

"Old 26 boys bike; in good shape; pick-up at residence for \$10.00. Call for pick-up address." 334-2902.

Want to sell: Never worn beautiful wedding dress and veil. Size 7-8. Call x2031 during day or 471-3165 after 5:30 and on weekends.

For sale: 4-3/4 yds 46" new insulated drapery lining, contemporary wine rack, electric hurricane lamp, B/W Motorola 21" console TV, needs repair. Jerry x5238/471-0262.

Dexter Dan, Juggler (alias Raymond Cloutier), is ready to entertain at your next party or get together (both adult and children). Call x2759 or 480-7136.

For sale: Good beginner's pool table, 3 2/3 ft. by 7 ft. Two cue sticks included. \$75. Morris x4204 or 482-7775.

Wanted: Source of raw cows milk. Beekeeping equipment for sale \$300 worth for \$200. Everthing needed for a beginner. Call 487-8633.

Antiques, victrola, stereos, tape recorder, cameras, guns, couch, paintings, scuba gear, rugs, more. 481-5659 eve.

Pioneer car stereo with cassette, model KP-4000, excellent condition. With two 6x9 speakers, \$50. Bill x5437 or 991-0361 after 5.

Solid redwood bar-be-que cart, grill, rotisserie, thermometer, 3/8" pipeframe, extra shelf spacewheel. \$95 x3576/944-7042.

Heavy-duty ping-pong table. Home-made and painted for outside use. Full size. \$65. Joe x3576/944-7042.

For Sale: Marquise diamond ring-size 6-1/2 valued at \$800 asking \$650. Myra x5834.

En Garde: Sabre/foil fencer wants: info on fencing clubs in area, fencers to practice with Frkonja. x2861. Home 480-3281.

R/C airplane w/A.F. 25 electric kit, only needs a radio to fly, half price. Lonnie x3231.

### INSPECTOR GENERAL HOTLINE

- FRAUD
- WASTE
- ABUSE
- MISMANAGEMENT

AT JOHNSON SPACE CENTER CALL 483-4773 OR TOLL FREE (800) 424-9183 24 HOUR ANSWERING SERVICE

CALLER CAN BE ANONYMOUS

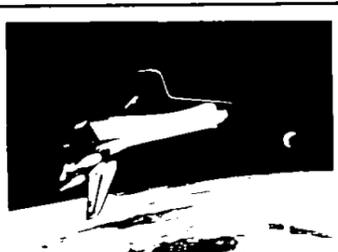
OR WRITE: NASA INSPECTOR GENERAL P. O. BOX 23089 L'ENFANT PLAZA STATION WASHINGTON, D.C. 20024

### Stereos & Cameras

Heathkit Gr-295 color TV set, 23" tube, solid maple cabinet, works well \$225. x3576/944-7042.

For Rent: Portable VHS video recorder and color TV camera. Either unit \$45 for 3 days or both units, \$75 for 3 days. 488-0903.

Camera - Barely used Mamiya C330 Professional (Mamiyapro) with 80 mm 2.8 lens, viewfinder. 488-8862 (after 6 p.m.).



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Editor: Eddy Wittry

### Boats & Planes

FFA approved private pilot and/or Instrument Ground School, \$10. Gulf Coast Aero Club, Mark Schmalz, x4436/480-2634.

For Sale: 100 Hp Johnson outboard motor, old but good condition. Includes controls & wire harness. \$100 call x3977 or 422-0435 after 5 p.m.

### Cars & Trucks

1980 VW diesel pickup, white, with camper shell, 4 speed, a/c, am/fm cassette. Call 334-2757 after 5 pm.

Sharp 1977 Chev. Chevette hatchback. Jim x4947 or 480-2927.

For sale: 1973 Chevrolet Belair Sedan. Runs good, 62,000 miles, good tires, vinyl roof, \$900 or best offer. Call 488-4576.

1978 Brougham mini-motor home, 17,800 miles ONAN, roof/dash air, cruise, Dodge chassis, excellent cond. \$13,100 479-6766 after 6.

Wanted: 78 or 79 Monte Carlo, low mileage, good condition, reasonably priced. Bill after 4:30 488-0658.

73 MG Midget good interior, body, paint, new top, fun car \$2200 or will consider trade for 65-69 Mustang 486-8585.

For sale: 1972 Caprice Chevrolet 4 door, tilt wheel, \$350. 481-0523.

New Louvers for Datsun Z 212, Toyota Celicia L. B. Mustang I H.B. \$45/ea. 488-5510/x337 Tony or 488-5849 after 5.

For sale: 1970 Oldsmobile '98 dependable, good work car. 2635 Plymouth Rock, Webster (Heritage Park) x5844/332-8291 (Bonnie) \$500.

Wanted to rent: Automobile tow bar for 2 weeks in July. Dick x3969/649-1236.

Camaro parts, all years. Call Jeff after 5:30 p.m. 487-2978.

1968 VW squareback, rebuilt fuel inj engine, \$600 Andy x5127/488-5433 after 5.

1968 Ford F-500 with 14' enclosed box, excellent cond. Sell or trade for car, cycle or ? \$1795.00 M. Elliott x4857/482-8160.

### Cycles

1980 Honda 750 F, 4000 miles, excellent condition, luggage rack, faring, adult owner, just pay off note plus \$150. 460-0236 after 6.

1973 Honda CB 350, 4 cylinder, low mileage, excellent condition. \$700 483-5107 ask for Dean after 5/488-7032.

1974 Honda 450 DOHC gas-sipper, excellent condition with only 12,000 miles, luggage rack, back rest, safety bars. \$575 takes it. 488-8862 (after 8 pm).

### Property & Rentals

For Rent: Galveston By-The-Sea Condominium. Two bedroom furnished apartment for rent by day, week, or month. Clements 474-2622.

For Sale: Bayshore Townhouse, 2 story, 2-2-1 carport, pool, stove, refig. Must sale \$31,500 471-8556.

For Rent: Condo convenient to JSC. 1-1-2 Fireplace, refig., washer/dryer. Swimming pool. Actkinson 6451/482-6732.

Cape Kennedy, ocean front, new condo 2/2 luxurious, pool, garage. Fully furnished. Call collect 10367-9068. \$800 monthly.

Rent, Lake Livingston, Cape Royale 3 br waterfront cottage by marina. Tennis, pool, golf, boat ramp. 3 day min. 488-3746.

### Pets

AKC registered Old English Sheepdogs six weeks old. \$250-300 call 482-6660.

Horse for sale: six year old Paint Gelding w/new saddle and tack Rides great call Linda 480-2817 Weekends 925-6338.

Apricot mini poodle with house. Very affectionate, but lonely. \$65 x5844 after 5/332-8291 (Bonnie).

Brittany Spaniel puppies, AKC registered, affectionate, hunters, excellent w/children, champion bloodline, white & orange \$75-100. Margaret, 554-6065 after 6.

Chow Chow puppies, 13 weeks old, 1 male, 2 females. Love children, good watch dogs. No papers. \$75 each. Pat x2131/482-8233 after 5.

Mourning Doves, ringnecks \$5, white \$7.50, x4481.

WHY DON'T YOU STOP FIDDLING AROUND?



AND SEND YOUR COST REDUCTION IDEA ON A JSC FORM 1150 TO COST REDUCTION OFFICE AT BE-3!

Cartoon by Russ Byther

### Musical

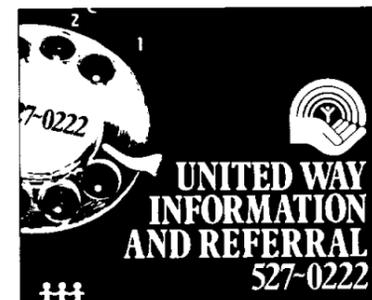
For sale: Selmer Bundy flute w/case. \$125 482-7775.

For sale: King Tempo cornet with Bach 6 mouthpiece, excellent condition \$120.00 334-3370.

Flute-Buescher Aristocrat with case, great for beginner. 488-3354.

Roundup deadline is the first Wednesday after publication.

## Need help but don't know where to find it?



### Household

Early Amer sofa or Beautrest double. Best offer for quick sell. 488-3354. Black contemporary sofa 9 ft. with builtin end tables, fur-like material; \$65 333-1757 after 4:30.

Wanted to buy: sofa (prefer sleeper), and other furniture items, except dinette. Please only reasonable items. Please call 944-2174 after 5:00.

Coffee table, solid wood, colonial style, paint if the color you like, good condition. C.W. x2848.

Stratalounger, deluxe, vinyl, light brown, has built in vibrator, excellent condition, full size. \$95 643-8944.

Love seats(2) mediterranean, gold foam cushions, fruitwood arms and trim, like new, \$100 each call 482-8781 eve.

2 orange modern chairs - \$25 ea. 2 red Spanish chairs - \$15 ea. Black vinyl recliner - \$50. Maple child's rocking chair - \$12 482-2810.

Folding chairs, like new, metal, maroon, 20, \$6 ea. Shirley, x2686.

Twin size mattress and box springs with frame and headboard. Good condition \$100. Nina x2307/482-9122.

Modern walnut occasion tables: (Lane) 1 coffee and 2 lamp tables like new \$150, 4 piece 20 ft. beige sectional couch \$100.00 484-2534.



#### Everything that goes up must come down?

Participants in the Seventh Annual Aerospace Workshop for Educators prepare to launch their model rockets as a part of a 10 day program that is designed to give them a comprehensive background on JSC and the space program.

## JSC, University of Houston and Civil Air Patrol sponsor teacher's workshop

The seventh Annual Aerospace Workshop for Educators was held at the Johnson Space Center June 1st through the 12th. The workshop is held each year and is sponsored jointly by JSC, the University of Houston, and the Civil Air Patrol. Areas covered included non-technical aviation and space lectures, demonstrations, and field trips aimed at elementary, secondary, and college-level administrators, counselors, and teachers.

Nearly all of the 42 participants who attended were from the local Bay Area. The program is aimed at informing educators about what is going on at the center. Hopefully then they will generate interest in their students. Three semester hours undergraduate or graduate credit was offered by the

University of Houston to persons who attended the workshop.

Topics covered included aerospace education, space suits, spacecraft tracking and communication, aviation history, model rocket construction and launching, weightlessness training, space transportation systems, space shuttle payloads, space photography, Earth resources, Ellington AFB, Voyager plans, and the Pioneer program.

All three sponsors agreed that this was one of the finest workshops thus far. "The successful completion of STS-1 and a host of excellent speakers made the program a big success," said Jim Poindexter, head of NASA's Educational Programs.

An eighth annual workshop is in the plans for next year.

## Laser on Mars . . .

from pg. 1

"Despite this somewhat deceiving abundance of man-made lasers," they reported, "no naturally-occurring lasers have ever been reported, even though the extreme variety of physical and chemical environments of extraterrestrial objects plausibly argues that natural lasers must exist."

In theory, lasers occur when atoms or molecules are stimulated to release photons during their transition from higher-energy to lower-energy states.

This process was observed in the Mars atmosphere, composed almost entirely of carbon dioxide, between January and April, 1980, through the use of a new Goddard-developed device and the Kitt Peak McMath Solar Telescope in Arizona. The new device is an infrared heterodyne spectrometer.

The new spectrometer provided the scientists with the means of determining that a molecular population inversion, which is necessary for lasing, did take place.

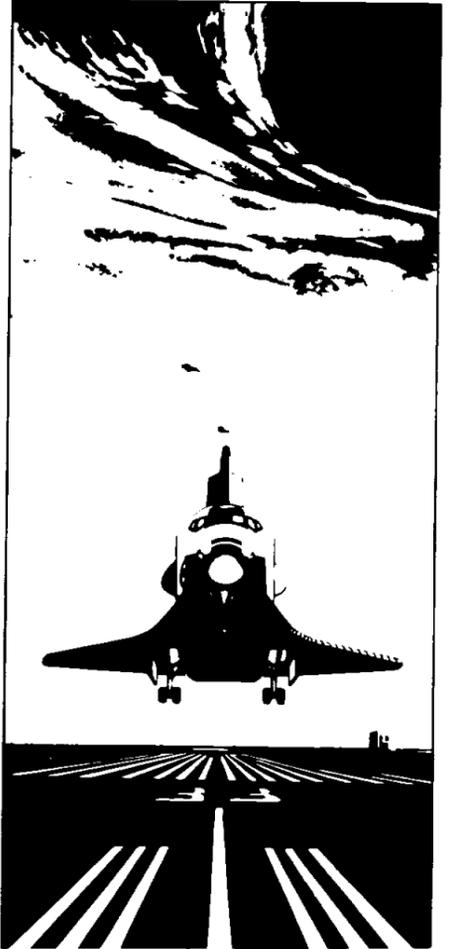
In the case of this observation, sunlight was absorbed high in Mars' atmosphere by the carbon dioxide. In the absorption process, carbon dioxide is pumped to a higher energy state and builds into a laser state.

The discovery gives indication that there can be sizable temperature differences in the planetary atmosphere, whereas past theory has held there has been a thermodynamic equilibrium there.

The natural laser, discovered on Mars, is identical in physical principle to man-made carbon dioxide lasers used for commercial, scientific and military purposes. Examples of terrestrial use include laser radar systems, industrial laser welding machines, and laser surgical "knives." A principal difference between the Mars laser and terrestrial lasers is that the total power output of the natural laser extends one million

megawatts, continuously, a power equivalent to that generated by about 1000 large hydroelectric power projects. In fact, the power generated by the natural laser on Mars exceeds the total power output of the United States by more than five times. Eventually, it may be possible to extract power from the natural laser and to beam it wherever needed from orbiting satellites.

The discovery, reported in Science Magazine, was made by Dr. Michael J. Mumma, Dr. David Buhl, Dr. Gordon Chin, Dr. Drake Deming, Fred Espenak and Dr. Theodore Kostiuik, all of Goddard, and Dr. David Zipoy, of the University of Maryland.



# SPACEWEEK 1981 Calendar

Noontime lecture series, star parties, model rocket demonstrations, films, amateur radio QSL card collections and much more will fill the July 13 to 20 Spaceweek 1981 calendar. Save the following two calendars so you can follow the events. All the week's happenings are free to the public unless noted otherwise.

The Spaceweek Lecture Series will take place in building two, from noon till one every weekday from July 13th till the 20th.

The Astrodome Marriott Hotel will host the first preliminary event of Spaceweek 1981 on July 8th with a film and lectures, all sponsored by the Fusion Energy Foundation.

Check the calendars and make plans to attend events!

## Calendar of Events

### Wednesday, July 8

2:00 p.m. America's Next 20 Years in Space: Reviving a National Commitment to Greatness; lectures by astronaut Dr. Claude Nicollier of the European Space Agency, James Hudson of Rockwell, Carol White of the Fusion Energy Foundation, and Dr. Krafft Ehrlicke of Space Global; film; Astrodome Marriott Hotel, 2100 South Braeswood, Houston; registration \$25.00

### Monday, July 13

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

### Tuesday, July 14

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

### Wednesday, July 15

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

7:30 p.m. - 9:00 p.m. Space Voyage Night; films; Bldg. 2 auditorium, Johnson Space Center, Houston

9:00 p.m. - 10:30 p.m. Star Party; telescopes; outside Bldg. 2, Johnson Space Center, Houston

### Thursday, July 16

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

### Friday, July 17

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

7:30 p.m. - 9:00 p.m. Space Voyage Night; films; Bldg. 2 auditorium, Johnson Space Center, Houston

9:00 p.m. - 10:30 p.m. Star Party; telescopes; outside Bldg. 2, Johnson Space Center, Houston

### Saturday, July 18

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

### Sunday, July 19

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

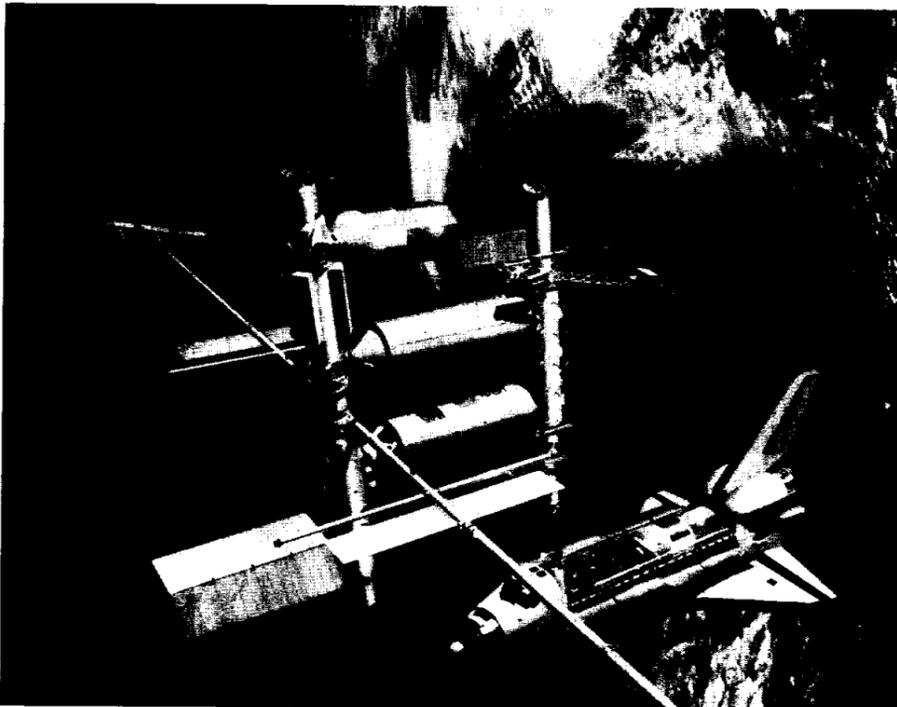
1:00 p.m. - 4:00 p.m. Ham Radio Demonstration; outside Gilruth Center, Johnson Space Center, Houston

1:00 p.m. - 4:00 p.m. Model Rocket Demonstration; near Rocket Park, Johnson Space Center, Houston

### Monday, July 20

9:00 a.m. - 4:00 p.m. Space Age and Computer Poster Contest; display; Bldg. 2, Johnson Space Center, Houston

7:00 p.m. - 9:30 p.m. Banquet; speaker - Deke Slayton; Jimmy Walker's, 2nd and Kipp St., Kemah; tickets \$16.00 by July 17 from Don Mayhew, 713-483-3701



This artist's concept depicts a Space Shuttle orbiter vehicle paying a visit to a Space Operations Center (SOC) in Earth orbit. This low-Earth orbit station concept is considered as a staging station for supporting a host of future space programs.

## Lecture Series

### MONDAY, July 13:

Mr. David Lund  
Director, Student Programs  
American Institute of Aeronautics and Astronautics

### TUESDAY, July 14:

Dr. Burton Edelson  
Senior Vice President  
Comsat General Corp.

### WEDNESDAY, July 15:

Dr. Richard Terrile  
Scientist  
Jet Propulsion Laboratory

### THURSDAY, July 16:

Mr. Ivan Bekey  
Director, Advanced Programs  
NASA Headquarters

### FRIDAY, July 17:

Mr. Clarke Covington  
Manager for Program Development  
Johnson Space Center

### MONDAY, July 20:

Dr. John Bertin  
Professor, Aerospace Engineering  
University of Texas at Austin